PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	10/662,641	Confirmation No.: 2664
Applicant:	Standring , *et al.*	
Filed:	September 15, 2003	
TC/A.AU.:	Unassigned	
Examiner:	Unassigned	
Docket No.:	06171.105097 IDX 1021	
Customer No.:	20786	
Title:	β-L-2' Deoxynucleosides for the Treatment of Resistant HBV Strains and Combination Therapies	

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

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Respectfully submitted,

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Jennifer A. Williams

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet	1	of	9

Complete if Known	
Application Number	**10/662,641**
Filing Date	**September 15, 2003**
First Named Inventor	**Standring , *et al.***
Group Art Unit	1623
Examiner Name	Unassigned
Attorney Docket Number	**06171.105097 IDX 1021**

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U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. [1]	U.S. Patent Document Number	Kind Code [2] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	AA	4,916,122	A	Chu *et al.*	04-10-1990	
	AB	4,957,924	A	Beauchamp	09-18-1990	
	AC	5,190,926	A	Chu *et al.*	03-02-1993	
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	BA	EP	0,350,287	A2	Vical, Inc.	01-10-1990		
	BB	EP	0,352,248	A1	Medivir Aktiebolag	01-24-1990		
	BC	EP	0,355,131	B1	Pro-neuron, Inc.	09-04-1996		
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	BG	WO	89/03838	A1	Pro-neuron, Inc.	05-05-1989		
	BH	WO	90/00555	A1	Vical, Inc.	01-25-1990		
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	BK	WO	91/19721	A1	Glazier	12-26-1991		
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	BO	WO	93/00910	A1	Vical, Inc.	01-21-1993		
	BP	WO	94/20523	A1	Burroughs Wellcome	09-15-1994		
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	BS	WO	96/11204	A1	Max Delbrueck C.M.M.	04-18-1996		
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	BV	WO	96/40164	A1	Emory; UAB RF; CNRS	12-19-1996		
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	BY	WO	01/96353	A2	Novirio (Idenix); CNRS	12-20-2001		

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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
	CA	AHMED, S.N.S., *et al.*, "Early detection of viral resistance by determination of hepatitis B virus polymerase mutations in patients treated by lamivudine for chronic hepatitis B," *Hepatology*, 32(5):1078-1088 (November 2000)	
	CB	ALLEN, M. I., *et al.*, "Identification and characterization of mutations in hepatitis B virus resistant to lamivudine," *Hepatology* 27(6):1670–1677 (June 1998).	
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	CF	BLOCH, A., *et al.* "The Role Of The 5'-Hydroxyl Group Of Adenosine In Determining Substrate Specificity For Adenosine Deaminase," *J. Med. Chem.*, 10(5):908-12 (September 1967).	
	CG	BRIDGES, E.G., *et al.*, "Characterization of a dCTP Transport Activity Reconstituted from Human Mitochondria," *J. Biol. Chem.*, 274(8):4620-4625 (February 19, 1999)	
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	CI	BRIDGES, E.G., *et al.*, "Inhibition of Mammalian DNA Polymerase-Associated 3' to 5' Exonuclease Activity by 5'-Monophosphates of 3'-Azido-3'-Deoxythymine and 3'-Amino-3'-Deoxythymidine," *Biochemical Pharmacology*, 45(8):1571-1576 (1993).	
	CJ	BRYANT, M.L., *et al.*, "Antiviral L-Nucleosides Specific for Hepatitis B Virus Infection," *Antimicrobial Agents and Chemotherapy*, 45(1):229-235 (January 2001).	
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Sheet	4	of	9

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	DA	CHEN, M.S., *et al.*, "Characterization of Pyrimidine Deoxyribonucleoside Kinase (Thymidine Kinase) and Thymidylate Kinase as a Multifunctional Enzyme in Cells Transformed by Herpes Simplex Virus Type 1 and in Cells Infected with Mutant Strains of Herpes Simplex Virus," *J Virol.*, 30(3):942-945 (June 1979).	
	DB	CHEN, C.-H., *et al.*, "Delayed Cytotoxicity and Selective Loss of Mitochondrial DNA in Cells Treated with the Anti-human Immunodeficiency Virus Compound 2',3'-Dideoxycytidine," *J. Biol. Chem.*, 264(20):11934-11937 (July 15, 1989).	
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	EA	DUTSCHMAN, G.E., *et al.*, "Metabolism of 2',3'-dideoxy-2',3'-didehydro-β-L-(-)-5-Fluorocytidine and Its Activity in Combination with Climically Approved Anti-Humna Immunodeficiency Virus β-D-(+) Nucleoside Analogs In Vitro," *Antimicrobial Agents and Chemotherapy*, 42(7), 1799-1804 (July 1998).	
	EB	FU, L., *et al.*, "Role of Additional Mutations outside the YMDD Motif of Hepatitis B Virus Polymerase in L-(-)-SddC (3TC) Resistance," *Biochemical Pharmacology*, 55(10):1567-1572 (1998).	
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	FA	IMAI, K., *et al.*, "Studies on Phosphorylation. IV. Selective Phosphorylation of the Primary Hydroxyl Group in Nucleosides." *J. Org. Chem.*, 34(6):1547-1550 (June 1969).	
	FB	JONES, R.J., *et al.*, "Mini Review: Nucleotide prodrugs," *Antiviral Research*, 27:1-17 (1995).	
	FC	JUROVČIK, W., *et al.*, "Metabolism of pyrimdine L-nucleosides," *Nucleic Acids Research*, *3*(8), 2143-2154 (August 1976).	
	FD	KORBA, B.E., *et al.*, "A cell culture assay for compounds which inhibit hepatitis B virus replication," *Antiviral Res.*, 15:217-228 (1991).	
	FE	KRAYEVSKY, A.A., *et al.*, "Can a Substrate Enantiomer Be a Substrate for the Same Enzyme?," *Molecular Biology*, 30(5, Part 1):585-591 (1996).	
	FF	KRAYEVSKY A.A., *et al.*, "Should the Asymmetry of Enzymatic Active Centers Always Correlate with the Asymmetry of their Substrates?," *J. of Biomolecular Structure & Dynamics*, 14(2):225-230 (1996).	
	FG	KUCERA, L.S., *et al.*, "Novel membrane-interactive ether lipid analogs that inhibit infectious HIV-1 production and induce defective virus formation, " *AIDS Res. Hum. Retroviruses*, 6:491-501 (1990).	
	FH	LABENZ, J., *et al.*, "Analysis of the TK Enzyme Complex Induced by HSV Types 1 and 2 by Means of Isoelectric Focusing and Polyacyrlamide Gel Electrophoresis," *Arch. Virol.*, 71:235-249 (1982).	
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	FJ	LIN, T.-S., *et al.*, "Synthesis of Several Pyrimidine L-Nucleoside Analogues as Potential Antiviral Agents," *Tetrahedron Letters*, 51(4):1055-1068 (1995).	
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Sheet 7 of 9

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Application Number	10/662,641
Filing Date	September 15, 2003
First Named Inventor	Standring , *et al.*
Group Art Unit	1623
Examiner Name	Unassigned
Attorney Docket Number	06171.105097 IDX 1021

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Examiner Initials *	Cite No. [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
	GA	NAKAYAMA, C., *et al.*, "Synthetic Nucleosides and Nucleotides. XX. Synthesis of Various 1-β-Xylofuranosyl-5-Alkyluracils and Related Nucleosides," *Nucleosides & Nucleotides*, 1(2):139-146 (1982).	
	GB	NORBECK, D.W., *et al.*, "A new 2',3'-dideoxynucleoside prototype with *in vitro* activity against HIV," *Tetrahedron Letters*, 30(46):6263-6266 (1989).	
	GC	ONO, S. K., *et al.*, "The polymerase L528M mutation cooperates with nucleotide binding-site mutations, increasing hepatitis B virus replication and drug resistance," *J. Clin. Investig.*, 107:449–455 (2001).	
	GD	ONO-NITA, S.K., *et al.*, "YMDD Motif in Hepatitis B Virus DNA Polymerase Influences on Replication and Lamivudine Resistance: A Study by *In Vitro* Full-Length viral DNA Transfection," *Hepatology*, 29(3):939-945 (March 1999).	
	GE	ONO-NITA, S.K., *et al.*, "Susceptibility of lamivudine-resistant hepatitis B virus to other reverse transcriptase inhibitors," *The Journal of Clinical Investigation*, 3(12):1635-1640 (June 1999).	
	GF	PAN-ZHOU, X.-R., *et al.*, "Differential Effects of Antiretroviral Nucleoside Analogs on Mitochondrial Function in HepG2 Cells," *Antimicrobial Agents and Chemotherapy*, 44(3):496-503 (March 2000).	
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	GL	SCHINAZI, R.F., *et al.*, "Effect of Combinations of Acylovir with Vidarabine or its 5'-Monophosphate on Herpes Simplex Viruses in Cell Culture and in Mice," *Antimicrobial Agents and Chemotherapy*, 22(3):499-507 (September 1982).	

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	HA	SCHINAZI, R.F., *et al.*, "Selective Inhibition of Human Immunodeficiency Viruses by Racemates and Enantiomers of *cis*-5-Fluoro-1-[2-(Hydroxymethyl)-1,3-Oxathiolane-5-yl] Cytosine," *Antimicrobial Agents and Chemotherapy*, 36(11):2423-2431 (November 1992).	
	HB	SEIFER, M., Hamatake R, Bifano M, Standring DN. "Generation of replication-competent hepatitis B virus nucleocapsids in insect cells," *J. Virol.*, 72(4):2765-2776 (April 1998).	
	HC	SEIGNE`RES, B., *et al.*, "Duck hepatitis B virus polymerase gene mutants associated with resistance to lamivudine have a decreased replication capacity in vitro and in vivo," *J. Hepatol.* 34:114–122 (2001).	
	HD	SHUTO, S., *et al.*, "A facile one-step synthesis of 5'-phosphatidylnucleosides by an enzymatic two-phase reaction," *Tetrahedron Letters*, 28(2):199-202 (1987).	
	HE	SÖDERLUND, J.C.F., "Mitochondrial versus cytosolic activities of deoxyribonucleoside salvage enzymes," in *Purine and Pyrimidine Metabolism in Man VIII*, A.Shota & M. Taylor (Eds.), Plenum Press, New York, 1995, pp. 201-204.	
	HF	SPADARI, S., *et al.*, "L-Thymidine is Phosphorylated by Herpes Simplex Type 1 Thymidine Kinase and Inhibits Viral Growth," *J. Med. Chem.*, 35(22):4214-4220 (1992).	
	HG	STUYVER, L. J., *et al.*, "Nomenclature for antiviral-resistant human hepatitis B virus mutations in the polymerase region," *Hepatology* 33(3):751–757 (March 2001).	
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	HK	Von JANTA-LIPINSKI, M., *et al.*, "Newly Synthesized L-Enantiomers of 3'-Fluoro-Modified β-2'-Deoxyribonucleoside 5'-Triphosphates Inhibit Hepatitis B DNA Polymerase but not the Five Cellular DNA Polymerases α, β, γ, δ, and ε Nor HIV-1 Reverse Transcriptase," *J. Medicinal Chemistry*, 41(12):2040-2046 (May 21, 1998).	
	HL	WANG, L., *et al.*, "Recovery of Liver Sinusoidal Endothelial Cell Function over Time after Hypothermic Preservation in Rat Orthotopic Liver Transplantation," AASLD abstracts published in *Hepatology*, 24(No. 4, Pt. 2):431A, Abstract No. 1219 (1996).	

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	IA	YING, C., *et al.*, "Inhibition of the replication of the DNA polymerase M550V mutation variant of human Hepatitis B Virus by adefovir., tenofovir, L-FMAU, DAPD, penciclovir and lobucavir," *J. Viral Hepatitis*, 7:161-165 (2000).	
	IB	ZEDECK, M.S., *et al.*, "Inhibition of the steroid-induced synthesis of D5-3-ketosteroid isomerase in *Pseudomonas testosterone* by a new purine deoxyribonucleoside analog: 6-chloro-8-aza-9-cyclopentylpurine," *Mol. Pharmacol.*, 3(4):386-395 (1967).	
	IC	ZHANG, W., *et al.*, "Removal of Silyl Protecting Groups from Hydroxyl Functions with Ammonium Fluoride in Methanol." *Tetrahedron Letters*, 33(9):1177-1180 (1992).	
	ID	ZHU, Y.-L., *et al.*, "Inhibition of Replication of Hepatitis B Virus by Cytallene In Vitro," *Antimicrobial Agents and Chemotherapy*, 41(8):1755-1760 (August 1997).	
	IE	ZHU, Y.-L., *et al.*, "Anti-Hepatitis B Virus Activity and Metabolism of 2',3'-dideoxy-2',3'-didehydro-β-L-(-)-5-Fluorocytidine," *Antimicrobial Agents and Chemotherapy*, 42(7):1805-1810 (July 1998).	
	IF	ZHU, C., *et al.*, "Incorporation of Nucleoside Analogs into Nuclear or Mitochondrial DNA Is Determined by the Intracellular Phosphorylation Site," *J Biol Chem*, 275(35):26727-26731 (2000).	
	IG	ZOULIM, F., *et al.*, "Drug therapy for chronic hepatitis B: Antiviral efficacy and influence of hepatitis B virus polymerase mutations on the outcome of therapy," *J. Hepatology*, 29:151-168 (1989).	
	IH	ZOULIM, F., "Evaluation of novel strategies to combat hepatitis B virus targetting [sic] wild-type and drug-resistant mutants in experimental models," *Antivir. Chem. Chemother.*, 12(Suppl. 1):131–142 (2001).	

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